Let g be the mean anomaly;
ϕ be the angle of excentricity;
i be any positive integer number.

Put $\beta = \tan\frac{\phi}{2}$, $\mu = i\cos^2\frac{\phi}{2}$,

$$P_i = 1+\mu+\frac{\mu^2}{2}+\frac{\mu^3}{2.3}+\&c.+\frac{\mu^i}{2.3\ldots i} \qquad Q_1 = 1-\mu,$$

$$P_{i+1} = P_i + \frac{\mu^{i+1}}{2.3\ldots i+1} \qquad Q_2 = Q_1+\frac{\mu^2}{2},$$

$$\&c \qquad Q_3 = Q_2-\frac{\mu^3}{2.3},$$

$$\&c.$$

Then the Equation of the Center

$$=(1-\beta^2)\Sigma_1^{\infty}\frac{2}{i}\left\{P_i.\beta_i+P_{i+1}.Q_1.\beta^{i+2}+P_{i+2}.Q_2.\beta^{i+4}+\&c.\right\}\sin ig.$$

The analysis which has led me to this, and the form of this result, are by no means peculiar to the Equation of the Center only, but apply to all functions which it is necessary to develope in series proceeding by sin ig or cos ig.

2. "An Experimental Inquiry undertaken with the view of ascertaining whether any, and what signs of Current Force are manifested during the organic process of Absorption (Lacteal) in living animals."—Part II. By H. F. Baxter, Esq. Communicated by Dr. Todd, F.R.S. &c. Received October 29, 1852.

In the experiments related in this paper, it is shown that when the electrodes of a galvanometer are brought into contact, one with the mucous membrane of the intestine, and the other with the chyle flowing from the lacteal of the same part, an effect upon the needle occurs indicating the chyle to be *positive*. The effects may be partly due to the changes which take place during *secretion*, the mesentery acting as a conducting body; this supposition however will not negative the conclusion that the effects may be attributed, in some measure at least, to the changes which occur during lacteal absorption.

3. "An Experimental Inquiry undertaken with the view of ascertaining whether any, and what signs of Current Force are manifested during the organic process of Assimilation in the Muscular and the Nervous Tissues in living animals."—Part III. By H. F. Baxter, Esq.

§ I. *On the existence of Current Force in the Muscular Tissues.*

After relating the conclusions arrived at by Matteucci in reference to the origin of the *muscular current*, the author endeavoured to obtain more direct evidence by forming a circuit between the muscular tissue and the venous blood; the effects however were but slight, they nevertheless indicated the *tissue* and the *venous* blood